IN THE CLAIMS

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Please amend the Claim as follows:

1. (canceled).

2. (canceled)..

3. (canceled).

4. (canceled).

5. (canceled).

6. (canceled).

7. (canceled).

8. (canceled).

9. (canceled).

10. (canceled).

11. (canceled)..

12. (canceled).

13. (canceled).

14. (canceled).

15. (canceled).

16. (canceled).

17. (canceled).

18. (canceled).

19. (canceled).

20. (canceled).

21. (canceled).

22. (canceled)..

23. (canceled).

24. (canceled).

25. (canceled).

26. (canceled).

27. (canceled).

28. (canceled).

29. (canceled).

30. (canceled).

31. (canceled).

32. (canceled).

33. (canceled).

34. (canceled).

35. (canceled).

36. (canceled).

37. (canceled).

38. (canceled).

39. (currently amended) A milk flow device adapted to be positioned between a milk claw and a pipe line comprising

a conduit positioned between a milk claw and a pipe line for transporting in a selected direction and at a selected slope so as to ~~be~~ enable gravity to assist a continuous milk flow

varying in height up to a maximum height to be transported within said conduit and wherein said maximum height is less than the height which would occlude said conduit;

a first sensor having a predetermined cross-sectional area defining an opening for passing a milk flow therethrough and being located at a predetermined location in said conduit, said predetermined cross-sectional area being greater than the cross-sectional area of a milk flow passing therethrough for determining the height of a selected section of the continuous milk flow at said predetermined location as a function of that portion of said predetermined cross-sectional area enclosed by the selected section of a continuous milk flow at said predetermined location and the conductivity of milk; and

a second sensor having a cross-sectional area substantially equal to the cross-sectional area of the first sensor and being spaced in said conduit in said selected direction and a known distance from first sensor for determining the height of said selected section of the continuous milk flow at said known distance as a function of that portion of said predetermined cross-sectional area enclosed by the selected section of said continuous milk flow at said known distance and the conductivity of milk.

40. (original) The milk flow device of claim 39 further comprising

a conductivity sensor located in said conduit and positioned to be in substantially continual contact with said continuous milk flow for measuring the conductivity of milk forming said milk flow in the proximity of said first sensor and second sensor.

41. (original) The milk flow device of claim 40 further comprising

a processing device operatively connected to said first sensor, said second sensor and said conductivity sensor for deriving the cross-sectional area of a said milk flow from said height of the selected section of the continuous milk flow determined by said first sensor, determining an elapsed time for said selected section of the continuous milk flow to traverse said known distance between said first sensor and said second sensor and for calculating therefrom a milk flow rate through said conduit compensated for variances of milk conductivity measured by said conductivity sensor.

42. (original) The milk flow device of Claim 39 wherein said selected slope relative to horizontal plane varies between about 5 degrees to about 85 degrees.

43. (original) The milk flow device of Claim 42, wherein said selected slope varies between about 10 degrees to about 80 degrees.

44. (original) The milk flow device of Claim 43 wherein said selected slop varies between about 20 degrees at about 60 degrees.

45. (original) The milk flow device of Claim 44 wherein said selected slope is about 25 degrees to about 35 degrees.

46. (canceled).

47. (canceled).

48. (canceled).

49. (canceled).

50. (canceled).

51. (original) A system comprising

a conduit positioned between a milk claw and a pipe line for transporting in a selected direction at a selected slope to assist by gravity the passage of a continuous milk flow varying in height up to a maximum height within said conduit wherein said maximum height is less than the height which would occlude said conduit;

a first sensor having a predetermined cross-sectional area defining an opening for passing a milk flow therethrough and being located at a predetermined location in said conduit, said

predetermined cross-sectional area being greater than the cross-sectional area of a milk flow passing therethrough for determining the height of a selected section of a continuous milk flow at said predetermined location as a function of that portion of said predetermined cross-sectional area enclosed by the selected section if said continuous milk flow at said predetermined location and the conductivity of milk;

a second sensor having a cross-sectional area substantially equal to the cross-sectional area of the first sensor and being spaced in said conduit in the selected direction and a known distance from first sensor for determining the height of said selected section of the continuous milk flow at said known distance as a function of that portion of said predetermined cross-sectional area enclosed by the selected section of a said continuous milk flow at said known distance and the conductivity of milk;

a conductivity sensor located in said conduit and positioned to be in substantially continual contact with said continuous milk flow for measuring conductivity of milk forming said milk flow in the proximity of said first sensor and second sensor; and

a processing device operatively connected to said first sensor, said second sensor and said conductivity sensor for

deriving the cross-sectional area of a said milk flow from said height of said selected section of the continuous milk flow determined by said first sensor, determining an elapsed time for said selected section of the continuous milk flow to traverse said known distance between said first sensor and said second sensor and for calculating milk flow rate through said conduit based on integrating a selected number of selected sections of milk flow compensated for variances of milk conductivity measured by said conductivity sensor.

52. (original) The system of Claim 51 further comprising

a receiving jar operatively coupled to said pipeline for collecting said milk.

53. (original) The system of Claim 51 wherein said first sensor comprises a pair of spaced opposed rings.

54. (original) The system of Claim 52 wherein said second sensor comprises a pair of spaced opposed rings.

55. (withdrawn) A milk flow meter for a milking system comprising

a conduit having side walls and a minimum internal diameter selected to be in the range of a minimum internal diameter of at least about 0.75 inches for maintaining at peak milk flow rates from a milking apparatus substantially uniform flow of milk therethrough and for concurrently providing a stable continuous

vacuum in a vacuum channel between the flow of milk and the interior side walls of said conduit and a maximum internal diameter equal to about 1.5 times the minimum internal diameter.

56. (withdrawn) A milk flow meter for use in a high production milking system to reduce milking time and fluctuations of vacuum levels in the milking system comprising

a conduit having side walls and a predetermined minimum internal diameter selected to be in the range of a minimum internal diameter of at least about 0.75 inches for maintaining at peak milk flow rates from a plurality of inflations operatively connected to the milk claw substantially uniform flow of milk therethrough and for providing a stable and continuous vacuum in a vacuum channel defined by the flow of milk and the interior side walls of said conduit and a maximum internal diameter equal to about 1.5 times the minimum internal diameter.

57. (withdrawn) A milk flow meter adapted to be operatively connected to a milking apparatus withdrawing milk from an animal's teats while applying a controlled vacuum in the range of about 11.5 inches of Hg to about 14.0 inches of Hg to the teats enabling the milk to be withdrawn therefrom at various milk flow rates up to a peak flow rate, said milk flow meter comprising

a conduit having side walls and a predetermined minimum internal diameter selected to be in the range of a minimum internal diameter of at least about 0.75 inches for maintaining at the various milk flow rates a substantially uniform flow of milk therethrough and for concurrently providing a stable continuous vacuum in a vacuum channel between the flow of milk and the interior side walls of said conduit and a maximum internal diameter equal to about 1.5 times the minimum internal diameter.